The MAC Flyer
MAC
ANNIVERSARY
TO BERLIN
Changes in the Wind .... page 8
MILITARY AIR TRANSPORT SERVICE
U.S. AIR FORCE

The MAC Flyer

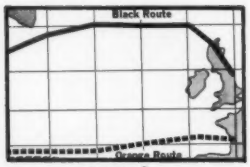
MILITARY AIRLIFT COMMAND

GEN JAMES R. ALLEN Commander in Chief
BRIG GEN PHILIP S. PRINCE Inspector General
COL LOUIE O. McFERON Director of Safety

LT COL ALAN D. YORK Supervising Editor
CAPT GALE E. CLOUSE, JR. Associate Editor
CAPT BYRON L. HOWARD Associate Editor
TOM O'LAUGHLIN Art Director

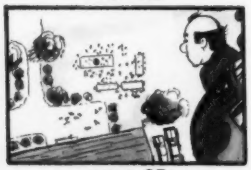
For Greater Safety and Efficiency in MAC Air Operations.

MACRP 127-5 JUNE 1982 VOL XXIX NO. 6



page 8

page 12


page 25

Flyers Anonymous 3
Wind Shear 4
The Flyer's Approach 7
Changes in the Wind 8
No Free Ride 12
Excellence in Airmanship 15
Don't Get Rolled 16
Flying-Hour Milestones 19
Mishap with a Moral 20
The Nightingale Shuttle 22
Deja Vu: Sigonella Airfield, Italy 24
C. R. Terror 25
Quick Stoppers 28

The MAC Flyer is published by the Directorate of Safety, Military Airlift Command, and is authorized until 26 Oct 1983, unless authorized to continue before that date. The contents are informative and not regulatory or directive. Names of people and places in mishap stories are fictitious; photos in mishap stories are representative and not necessarily of the aircraft or equipment involved. Information in any article may not be construed as incriminating under Article 31, UCMJ.

Contributions, comments and criticisms are welcome. Write: *The MAC Flyer,* HQ MAC/IGFE, Scott AFB, IL 62225; or call 618-256-3534 or autovon, 638-3534. The editors reserve the right to make any editorial changes in manuscripts which they believe will improve the material without altering the intended meaning.

Subscriptions are available from: The Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. Price: $2.50 per copy, $17.00 per year (foreign address $3.15 per copy, $21.25 per year). Changes of address for subscription mailing should be sent to GPO; give old and new address, including zip codes. USAF Active and Air Reserve Forces units establish requirements for this magazine through their publication distributor (DAPD). Other U.S. Military units should consult administrative directives. *The MAC Flyer* is published at an approximate ratio of one magazine for every five MAC aircrew members, and one for every twenty MAC support personnel.

Distribution F, X; OPR: HQ MAC/IGFE
ISSN 0024-788X

Flyer Call

Twenty-eight years ago this very month, a small group of intrepid MATS flyers huddled at Andrews AFB and put together the premiere issue of *The MATS Flyer.* This first issue also introduced a semi-suave, fictitious character known as C.R. Terror who exemplified (and humorously amplified) errors made during Combat Readiness Training (get it—C.R.T.). C.R.T. was designed to keep pilots who normally "flew" desks, "combat ready" by letting them fly support aircraft—occasionally. C.R.'s creator, and the only person who can take a byline for writing about the Irrepressible Pilot, was then Major William C. Anderson. Since retirement, Colonel Anderson has become a well-known author and has written many fine books, including "Hurricane Hunters" and "BAT 21."

Anyway, C.R. Terror represents the "human" in human factors and over the years, no matter who has "ghost written" C.R., both his amiable traits and especially his human limitations have provided us with a healthy portion of food-for-thought to help us avoid similar pitfalls or pratfalls.

The AWTH program, launched last month, will not only compliment what *The MAC Flyer* in general and C.R. Terror in particular have been doing these past 28 years, but it will create a solid base on which to change things for the "safer." All we have to do is support it—and trying to help our fellow flyers stay alive and well is something worth supporting.

ADY

FLYERS ANONYMOUS

VMC Traffic Pattern Problem

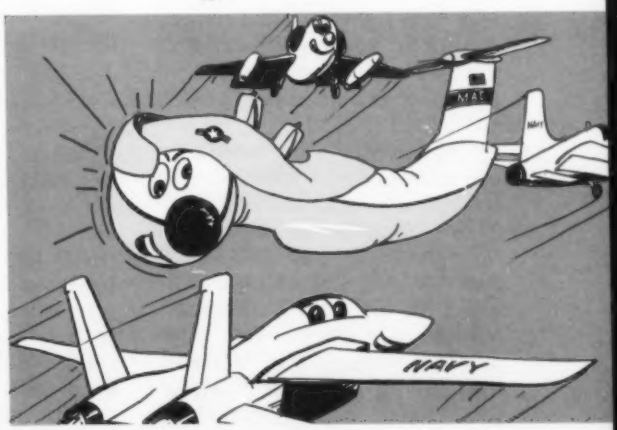
Traffic around the island naval air station was extremely heavy due to the multi-service/command exercise underway. Approach was late descending our airlifter into the terminal area, and vectored us to a base leg, then sent us to tower which cleared us for a visual approach. In the turn to final at 4 miles we were at 1,800 feet AGL and descending when we saw a two-ship formation of fighters

turning a VFR initial below us. Following our defensive pull up, the fighters sped out in front. After taking a couple of deep breaths, we continued the approach and landed.

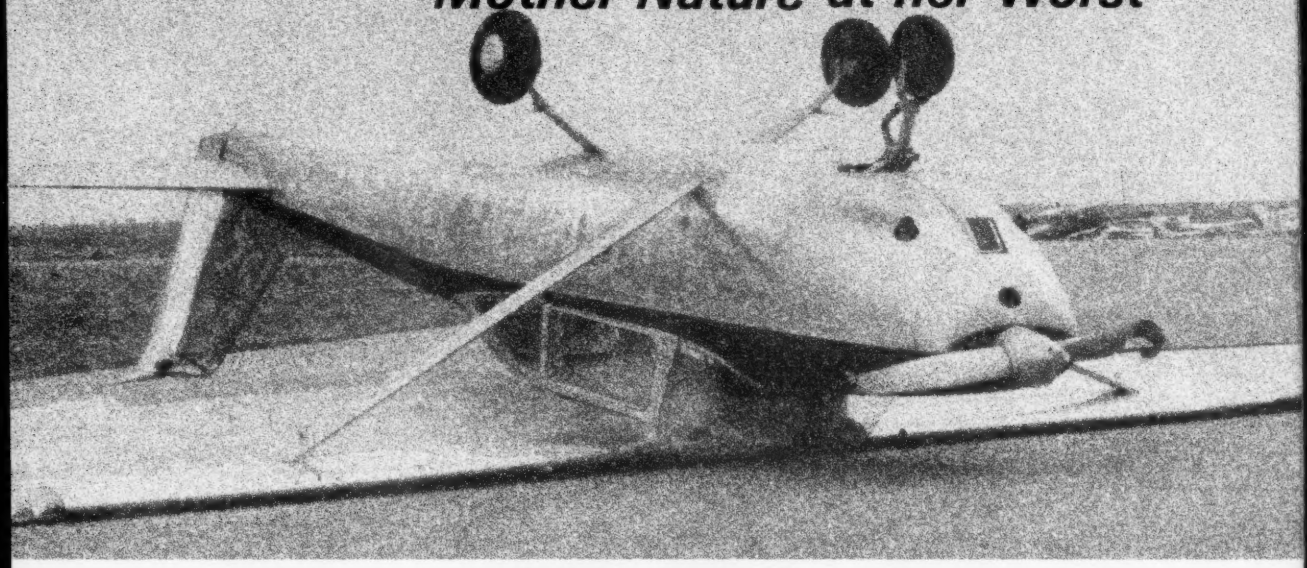
We were both under tower control: we were cleared to land, and the fighters had just called "5-mile initial." The fighters were legal at their normal VFR traffic pattern altitude of 1,500 feet. Our "Starliftfighter" was also legal on a controlled, constant descent from base to final turn. Why then were we all that close to being "legally" dead? Unless published locally, fighter VFR traffic pattern altitudes and airspeeds will vary with type airplane and service, but are generally above 1,000 feet AGL and 300 KIAS (A-10s excepted). The C-141 visual approach guidance is "800 feet AGL minimum on base" and "600 feet AGL minimum during turn to final," with downwind and base commonly flown at approximately 1,000 feet AGL. Tower's guidance is based on local procedures, experience, and judgement. In this case, the controller's experience led him to expect us to be below the fighters, because it ususally happens that way. My future "usual" visual approach will have my "heavy hauler" below 1,000 feet AGL at the turn to final, regardless of my distance out.

Visual approach proficiency is essential for operation in the ever increasing size and frequency of mass-gaggle type exercises. Having a plan of action, and always keeping a heads up/see-and-avoid attitude are still the best insurance.

Anonymous MAC Flyer



WIND SHEAR:
Mother Nature at her Worst



by Lt Cmdr Joe Towers, USNR
VR-57, San Diego, California

The Navy aircraft was on an approach to a naval air station and commencing descent at about 145 knots. The sky was partially obscured, visibility 2 miles, and winds were variable at 12 knots. The turboprop was in and out of clouds and light rain showers. At 3 miles, the crew sighted the approach lights and the runway threshold, but the remainder of the field was under dark clouds; lightning was observed about 5 miles to the north.

Suddenly, the indicated airspeed began increasing and the aircraft began drifting rapidly left of centerline. At 1 mile from the field, they were at 600 feet AGL and the airspeed indicated 185 knots. The crew commenced a waveoff. The pilot climbed through 800 feet still maintaining 185 knots. The gear was raised, flaps retracted to "approach," and normal power was set, with a 5° nose-up attitude. But in the next instant, the aircraft's airspeed dropped to 140 knots, and the plane was headed for the ground. Using max power, the crew arrested the descent at a scant 200 feet above the ground. They then reported to the tower what had happened and requested clearance to hold. After switching back to approach control, the crew heard a report of winds gusting to 47 knots.

The commander's comments on the hazard report included the following line: ". . .this crew was not anticipating the conditions they encountered. . ." If they had known more about wind shear, maybe they would have.

No doubt you have heard of wind shear. But what exactly is this powerful force of nature that can take a 100,000-pound aircraft flying at 30 percent above stall speed and, in a few seconds, cause it to cease flying and crash in a stalled condition?

Think of wind shear as a rapid change in windspeed and/or direction (both horizontally and vertically) over a relatively short distance. Severe wind shears have occurred close to the ground, with speed changes up to 50 knots and direction changes up to 180°.

Although wind shear can occur at any altitude, low-level wind shear is particularly hazardous. In this situation, the aircraft is usually configured with gear and flaps. This high drag, low-airspeed condition makes the aircraft very vulnerable. Additionally, an aircraft's performance can be critically affected since lift depends upon the relative airflow over its

wings. And wind shear can directly and dramatically change this vital dynamic pressure and, consequently, the amount of lift being produced. Other factors that have a bearing on the effects of wind shear are aircraft speed, aerodynamic characteristics, power/weight ratio, engine response, and what could be the most critical factor—the ability of the flight crew to respond.

Wind shears that cause an abrupt increase in headwind can, in a very short time, create a rapid increase in indicated airspeed. On the other hand, an abrupt decrease in headwind (or rapid reversal in direction) can cause indicated airspeed to drop sharply as with the Navy aircraft mentioned earlier. Any time changes in the wind occur at a greater rate than the aircraft's ability to compensate by accelerating or decelerating, it can cause deadly serious problems.

Wind shear may originate from frontal passage, land or sea breezes, jet streams, or thunderstorms. Of these, thunderstorms present one of the most hazardous low-level wind shear conditions. Wind shear patterns in and around a mature thunderstorm are extremely complex and often unpredictable. Thunderstorm-related wind shear can occur on all sides of the storm and in the severe downdrafts or downbursts that often occur beneath a thunderstorm cell. Even more complex and unpredictable wind shear patterns can result when there are numerous mature cells in the vicinity.

Two basic types of potentially hazardous wind shear conditions are depicted in the accompanying illustrations. In figure 1, the aircraft is traversing from

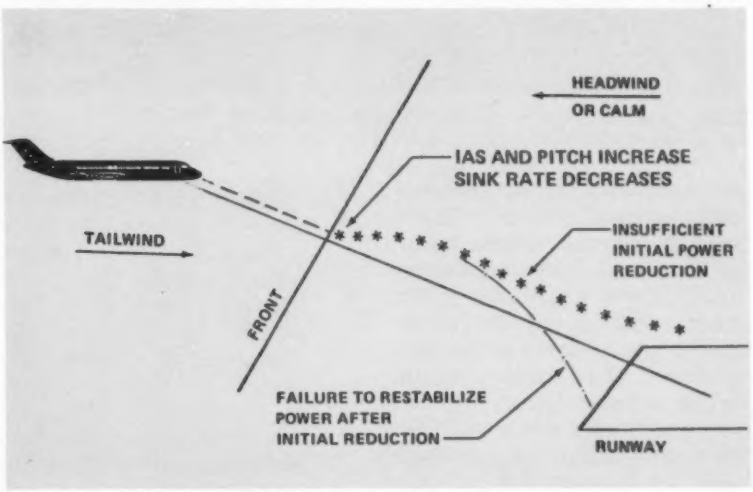


Figure 1. Tailwind Shearing to Headwind or Calm.

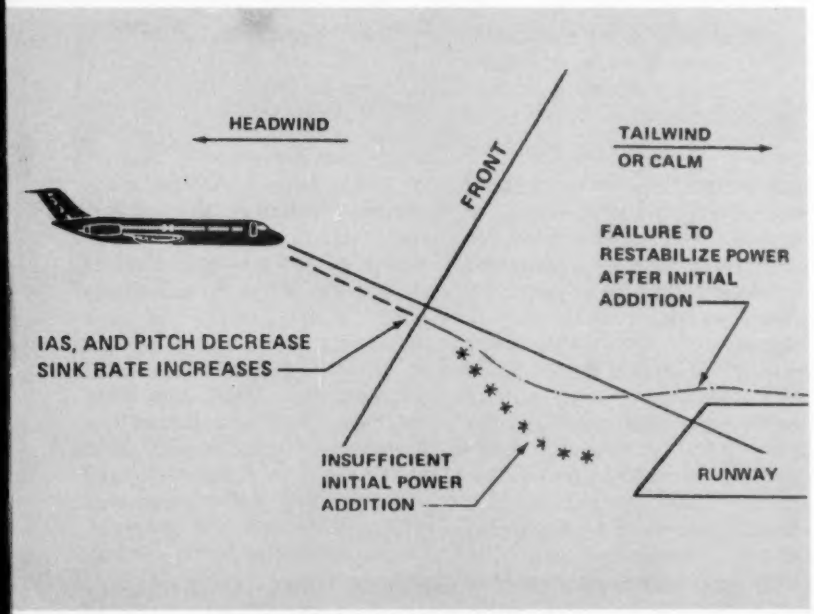


Figure 2. Headwind Shearing to Tailwind or Calm.

a tailwind to a headwind. Initially, indicated airspeed increases. Just the opposite wind situation is shown in figure 2. Here, indicated airspeed decreases, the aircraft pitches down, and altitude decreases.

Pilots attempting to fly a normal instrument approach with a mature cell in the vicinity are asking for trouble, as indicated in figure 3. At point A, the aircraft encounters a sudden increase in indicated airspeed and, as previously mentioned, this causes the aircraft to pitch up and gain altitude, thus deviating above the glide path by the time it gets to point B. Due to the faster than normal approach speed and the above-glide-path condition, normal pilot response is to reduce power and correct back to glide slope. As

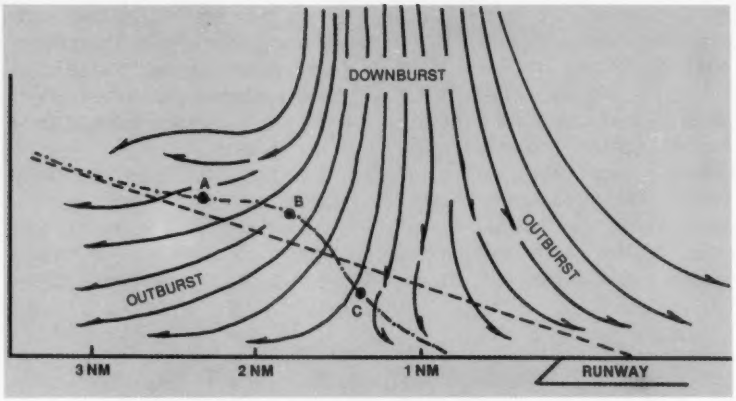


Figure 3. Example of Gust Patterns by a Mature Thunderstorm in the Vicinity of an Airfield.

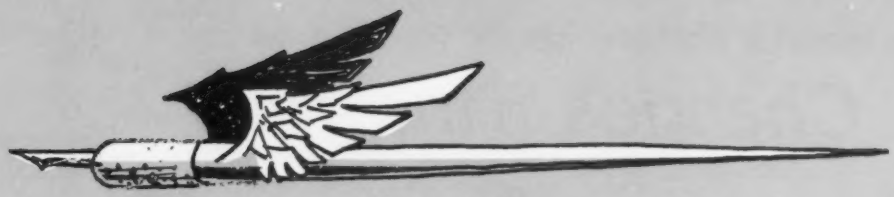
the headwind rapidly deteriorates, indicated airspeed falls off sharply, the nose pitches down, and the aircraft descends through and below the glide slope, causing the copilot to snicker silently at the pilot at the controls. This situation is further complicated by the severe downdrafts, and at point C, the aircraft is both low and slow, with the throttles at a reduced setting—and the copilot is probably not snickering any more. Note the dramatic change in windspeed and direction over a relatively short distance. In combination with the severe downdrafts, we can clearly see that after point C, the crew is rapidly approaching a condition of flight from which they cannot recover, or what is clinically referred to as an *in extremis* situation. An excerpt from a National Transportation Safety Board investigation starkly illustrates the severity of the problem: ". . .(the) aircraft was inadvertently placed in some combination of severe downdraft and/or wind shear that resulted in high rates of descent and/or loss of airspeed when less than 500 feet AGL. . .(and) impacted the ground. . .short of the runway."

A highly publicized study concerning the effects of heavy rain on lift and drag made the rounds through the aviation community recently. It reported significant loss of lift and increases in drag while flying in an approach configuration in heavy rain. Some reports on the study were introduced with catchy blurbs like: "heavy rain may pose greater hazard than wind shear." Officials at NASA Ames Research Laboratory, NASA Langley, and the FAA Technical Center, however, are in unanimous agreement that this study may have significantly exaggerated the aerodynamic effects of heavy rain. The research conducted in this area is inconclusive, but the point is that wind shear, even in the absence of heavy rain, can be deadly. Whatever the final conclusions, it would be extremely unwise for any pilot to discount the possible fatal effects of either wind shear or heavy rain. These two weather phenomena are often encountered simultaneously anyway, and it may be some time before their individual aerodynamic effects can be separated. According to Dick Bray of NASA Ames, the effects of heavy rain depend on many factors, including the aerodynamic characteristics of a particular aircraft's wings, whether or not the wings have leading-edge slats, etc. So our knowledge of wind shear and associated phenomena is still evolving. But there's one thing we do know for sure, just as that Navy patrol crew found: wind shear can kill. Awareness, and understanding, can correct significantly reduce the potential for this phenomenon to put you in harm's way.

—Adapted from *Approach*

Some mishap prevention gems to tuck away just in case you ever need them:

- Avoid taking off or landing under obviously hazardous wind conditions.
- Avoid areas of extremely heavy rainfall on approach or takeoff (the same goes for gusting and shifting winds).
- Monitor navigation system wind indications (if available) and compare them with surface wind reports for shear indications.
- Monitor ground speed versus indicated airspeed for any significant shift which might indicate a shear condition.
- Monitor power, pitch attitude, airspeed, and vertical velocity for any deviation from normal indications.
- Be prepared for immediate thrust application to maintain a safe margin over stall speed when encountering shear conditions.
- Take it around if deviations become excessive on final because of shear, downdrafts—or for *any* reason.



The Flyer's Approach

A Statement of Editorial Policy

As time marches forth people come and people go, copilots upgrade to AC, new engineers and loadmasters come from tech schools, full careers end after oh-so-brief 20, 25, or 30 years. With such a constant turnover within the Military Airlift Command, the editors of your friendly flying safety magazine trot out our charter from time to time to explain what MACRP 127-5, better known as *The MAC Flyer,* is all about.

What is *TMF*?

The MAC Flyer exists as the Military Airlift Command's "primary medium for conveying professional, educational flight safety material" to our primary audience. And that target audience is you, the standard, one each MAC crewmember. *TMF* is written by crewmembers for crewmembers, and its basic purpose hasn't changed since Lt Gen Joe Smith gave the original staff its marching orders exactly 28 years ago this month. And that is "for greater safety and efficiency in MAC air operations." So, the primary watchwords are "safety" and "aircrew." And that's also one of the reasons we don't print any of a dozen or so "suggested" articles on various topics *not* associated in some way with flying safety. This does not mean that we ignore the valuable contribution made by the legions of support people to safe mission accomplishment. In fact, they constitute our secondary audience.

TMF is in the IG chain of command, and is directly under the Director of Safety. We're not in public affairs, although they're good folks and we occasionally share information related to safety or significant happenings. Our office symbol says it all—IGFE; the IG part is self-explanatory, the F is for the Safety Directorate and the E stands for the Education and Awards Division.

We portray aircrews and airplanes in crisis events that are handled in a professional and timely manner. We emphasize both good techniques and, in a more serious vain, point out improper techniques and habits so you'll know what *not* to do if you're ever confronted with a similiar situation.

Our aim is *not* to point the "fickle finger" at people or embarrass anybody. And as we clearly state in the inside front cover, names of people and places in mishap stories and reports are fictitious, and the information in any article may not be construed as incriminating under article 31, UCMJ. We do try to offer you the opportunity to learn from both the mistakes and attaboys of all of us in the flying fraternity.

In our Excellence in Airmanship series we do publish the real names of aircrew members who have performed professionally and safely in serious aircraft incidents. These people are recognized for the superior airmanship they have displayed.

One last thing—although the experience on *The MAC Flyer* staff is pretty broad, *we need your help for your magazine.* We need your fiction and nonfiction articles, cartoons, artwork, photographs, etc. Some of your contributions come from the annual writing contest. But we need ideas, suggestions and unsolicited manuscripts all year long. After all, it's your magazine. So the next time you're flying along at FL370 (FL 250 for you Herk types or FL 025 for the fling-wingers) and you get this brainstorm of an idea for a story or article, jot it down, draft it and send it in. We'll edit your story and use it, giving you your deserved credit. Remember the watchwords: safety and aircrew. Your contributions can help us all to fly safe. And that's what *TMF* is all about.

Your computer flight plan can tell you about the . . .

Changes in the Wind

by Captain Gale E. Clouse, Jr.
Associate Editor

Lieutenant Knows E. Nuff: "Well sir, I'm ready for my initial AC check. I've been hitting the books pretty hard."

Captain Maczaminer: "I'm glad. But are you up to speed on MacPlan?"

Lieutenant Nuff: "MacPlan? Hmm, well, uh. Isn't that the plan for wartime airlift?"

Captain Maczaminer: "Not quite. And what about aerial refueling CFPs? How much do you know about those?"

Lieutenant Nuff: "Let's see. CFP for refueling must stand for change *f*ouled *p*lugs. How am I doing, sir?"

Captain Maczaminer: "I think we'd better have a little chat before that check, my friend. There's a number of changes in the works for the computer flight plans—CFPs, to you, lieutenant—that will improve the product and make the flight plans more useful to MAC crews. These include the use of the Optimized MAC Computer Flight Plan (OMCFP) or MacPlan, beginning in July 1982, and changes in the route structure of aerial refueling CFPs. And there's additional improvements planned in computer flight planning beyond these."

MAC's Fixed-Track CFPs

The present MAC fixed track and profile computer flight plan system became operational in 1961. Flight planners under this system must manually construct a track by using navaids or latitudes and longitudes from departure to destination base. The flight planner's route is then stored in the Air Force Global Weather Central (AFGWC) computer library at Offutt AFB, Nebraska. When ordering a CFP in addition to the track number, the flight planner must also select a profile to be flown which includes the aircraft type, Mach number, aircraft takeoff gross weight (TOGW), and temperature deviation. One major advantage of the automated MAC fixed track CFP is that AFGWC gets them out on time. In 1981, 98 percent of MAC flight plans were produced within 1 hour of the time they were requested.

Although the present CFP system is timely, it's limited in a number of ways. A chief limitation is the flexibility of the system. By having a fixed track, the same route is ordered each time the particular CFP is requested. The fixed track does not necessarily take advantage of the most favorable winds between the departure and destination locations. Other limitations include a time-consuming, manual effort to change track data, computer file-space limitations of 7,800 tracks at AFGWC, and no provisions for aerial refueling (AR) performance characteristics. A separate AR CFP system was developed to provide AR aircrews with usable computer flight plan products for these missions.

MacPlan

Lockheed developed computer software in the 1970s for a commercial flight planning system known as JetPlan. MAC contracted with Lockheed to interface this CFP software with AFGWC computers. The result is MacPlan which goes "on-line" 24 hours per day, beginning in July 1982. This software is not constrained by library file size and uses aircraft performance characteristics, plus planner-induced options, to provide an essentially unlimited number of route and profile options. MacPlan then selects altitudes based on the aircraft performance manual. It will routinely show step climbs for C-141 and C-5 aircraft up to flight level 410, unless directed otherwise by the flight planner.

MacPlan automatically selects an optimum route within:

—jet airways.

—direct legs between navaids.

—direct routes (latitude/longitude) without regard to the navaid structure.

—combination of the above.

MacPlan can optimize for best track within the available North Atlantic, North Pacific, Hawaiian, or Japanese Flexible Tracks.

One of the primary advantages of MacPlan is fuel savings. The USAF Airlift Center final report on the Operational Test and Evaluation of OMCFP indicated MacPlan when compared to the fixed system has the potential to reduce fuel usage by 2 percent for C-5A and C-141A/B aircraft in an operational environment. This equates to about $13 million per year in reduced fuel burnoff by

using MacPlan. But a key restriction lies in the fact that the potential for fuel savings may be significantly *decreased* when the actual takeoff gross weight (TOGW) differs by more than 10 percent with the forecast TOGW. Getting accurate payload information for MAC flights has always been a major problem, and still is, for flight planners even with a computer on the team. The MAC Air Force (MAC AF) flight planners need this information at least 6 hours in advance of scheduled departure so that the MacPlan can be ordered, computed, and be available to the aircrew at mission show time. So far, flight planners have only been partially successful in getting load data for each flight, according to Lieutenant Colonel Jack Cavender, Chief of the 21st Air Force Flight Planning Division.

MacPlan Versus Fixed Track CFPs

In figure 1, we have a side-by-side comparison of a new MacPlan on the left and a standard fixed track CFP on the right. Both are from Travis to Dover for C-5 aircraft at .77 Mach, FL370, with a TOGW of approximately 500,000 pounds. Both have a time enroute of 4 hours and 17 minutes. MacPlan distance for this route is 2,177 miles while the fixed track CFP is 2,219 miles. Under MacPlan the flight planner ordered the ICAO departure/destination, KSUU to KDOV. For the fixed track and profile, 888X TQW, was ordered. The fixed track CFP takes you overhead Dover at altitude, while the MacPlan takes you to a point where you will begin an enroute descent. MacPlan also provides a more accurate time and fuel requirement by using this enroute descent. A route summary provided at the top of the new CFP can be used to file the DD Form 175 flight plan or DD Form 1801 international flight plan. Instead of printing the name of the checkpoint, the MacPlan will have the same three letter identifier (four or five letter for reporting points) located on DOD charts. Also, latitude and longitude are in tenths of a minute, making it easier to enter the coordinates into the INS. Page

```
MAC COMPUTER FLIGHT PLAN KBLV      01     20675  .77       CFPI-37E1E5E.0
        KSUU KDOV                        H        C-5A            16/16Z-00Z

KSUU..MVA J84 EKR J116 DEN J60 HCT..PWE..IRE..CAP J152 ROD..
APE J30 PEY..KDOV
OPTIMIZED FUEL PLAN
                    OPNLWT 354000     PAYLOAD  44000
              ARR FUEL/TIME BIAS     5300 / 0000
KSUU              ALT  WIND    TAS  GS   ZD   ZT    TT   TDR  TC   MC   MH CAI
  LAT   LONG     TTR   B/O  TDEV
 N38162 W121558 9417                                    2177
TOC/ LEVEL OFF 330 2E0/ 49  377 425 135   20    20 2242   84   67   67
                    9357  0112  ***
MVA               330 2E0/ 64  450 513   50     5   25 1992   84   67   67
 N38339 W118019 0352  0131  +02
DTA               330 23E/ E7  449 525  262    32   57 1730   80   64   6E
 N39181 W112303 0320  0234  +21
EKR               370 220/ 76  452 511  217    2E  123 1513   78   63   6E
 N40041 W107555 0254  0313  +1E
DEN               370 230/ 63  451 499  141    17  140 1372   97   83   91
 N39480 W104532 0237  0364  +09
ECT               370 240/ 89  450 532  186    21  281 1186   76   6E   69
 N40272 W103554 0216  0427  +0E
PWE               370 250/12E  449 541  217    24  225  969   94   84   89
 N40120 W09C124 0152  0498  +07
IRE               370 250/115  445 553  166    18  243  803   91   84   8E
 N40081 W092355 0134  0551  +04
CAP               370 260/117  445 553  137    1E  25E  6EE   9C   91   95
 N39535 W089375 0119  0594  +04
ROCCK             370 260/114  444 554   81     9  307  585   91   88   91
 N39517 W087524 0110  0619  +03
ROD               370 2E0/109  444 552  178    19  326  407   82   81   82
 N40173 W084026 00E1  0675  +03
APE               370 270/103  445 545   67     8  334  340   97   99  101
 N40091 W082353 0043  0E9C  +04
OTMAN             370 270/103  445 541   32     3  337  309  10E  108  112
 N40007 W081550 0240  0736  +04
-X-               370 270/104  445 542   64     7  344  244  107  111  115
 N39419 W080352 0033  0726  +04
ARBEC             370 270/104  445 54E   3E     4  348  214  103  109  110
 N39350 W079580 0029  0736  +04
-X-               370 270/104  445 544    4     2  349  210  100  113  11E
 N39338 W079533 0029  0737  +04
EET               370 280/104  44E 546   8E     9  357  125  107  113  115
 N39067 W078087 0028  07C4  +04
BEGIN DESCENT  370 280/102  445 545   23     3  400  132   92   99   9E
                    0017  0771  +04
KDOV              DESCENT        *** *** 102   17  417    0   90   99   95
 N39078 W075270 0000  0831  ***
CFP  ALT  FWF +82  WF1 +63  WF2 +98  ENDURANCE 0517      TOGW 497 +04
A1 EWRI          ALT TDEV  WIND   TAS  GS   ZD   AD   ZT  TOGW
MCGUIRE          ****************  360 393   84   77  013   497
  1-0417 078078  2-0000 000000  3-0417 078078  4-0013 004594
  5-0045 011589  6-0015 005000  7-     000000  8-0529 009261
  9-     003000  10-    102261  13-    021183  B/O-   003078
     FL  330/LO          370/EKR
A2 KADW          ALT TDEV  WIND   TAS  GS   ZD   AD   ZT  TOGW
ANDREWS          ****************  360 269   78  104  017   499
  1-0417 078036  2-0000 000000  3-0417 078036  4-0017 005999
  5-0045 011628  6-0015 005000  7-     000000  8-0534 100663
  9-     003000  10-    103663  13-    022627  B/O-   003036
```

```
                                UNCLASSIFIED

     USERID= MAC1                    FPCID=  35634
MAC COMPUTER FLIGHT PLAN     888X1TQW0028     77       CFPI-075154710
888X TQW KSUU KDOV  DES MOINES       H     16       C-5A   16/16Z-24Z
 TRAVIS           ALT  WIND    TAS  GS   ZD   ZT    TT   TDR  TC   MC   MH
   N381C W1215C    TTR APLCHG       TD                                  CA
210R/7 SUU        26 271/028 351 332    8    1     1 2219 223 206 210
   N3810 W12203     416     5     -89
WINTERS          126 272/029 361 370   24    4     5 2195 023 006 002
   N3632 W12151     412    31     -10
COLOM            276 274/03C 376 408   49    7    12 2146 008 051 049
   N3650 W12052     405    72     -11
INTERIM LVLOFF 330 2E0/055 407 460   30    4    1C 2116 096 079 081
   N3647 W12014     401    91     -05
MINA             330 25C/060 449 505 104    12    2E 2012 09C 079 081
   N3634 W11602     349   131     002
DELTA            370 241/063 450 509 262    31    59 1750 079 063 065
   N3918 W11238     318   228     008
MEEKER           370 222/075 450 510 217    25   124 1533 076 061 066
   N4004 W10755     253   304     008
SIDNEY           370 228/079 449 519 233    27   151 1300 073 060 064
   N4106 W102E9     22C   385     007
WOLBACH          370 244/085 447 52C 210    24   215 1090 004 073 076
   N4123 W99821     202   45E     005
DES MOINES       370 252/098 445 538 211    24   239  879 088 080 083
   N4126 W09339     138   525     003
IOWA CITY        370 254/102 444 543  92    10   249  787 086 081 083
   N4131 W09137     128   5E4     002
JCLIFT           370 255/101 444 542 148    1C   305  639 088 085 087
   N4133 W08819     112   600     002
DRYER            370 259/097 443 538 277    31   336  362 090 092 094
   N4121 W08210      41   689     001
INTJ518/J78      370 269/097 444 524 151    17   353  211 120 126 131
   N4003 W07919      24   737     002
WESTMINSTER      370 276/105 444 547 113    12   485   98 10C 114 11C
   N3930 W07EE9      12   771     002
WILMINGTON/DQO 370 279/101 444 538  E5     7   412   33 000 009 006
   N3941 W07536       5   790     002
KENTON           370 281/099 444 466  27    4   41C    C 172 182 193
   N3914 W07531       1   801     002
DOVER            370 281/099 444 489   6    1   417    0 159 169 179
   N3900 W07528       0   804     002
CFP ALT   FWF +78 WF1  +65 WF2  +90 ETP +152 PG 031 TOGW +500000 +4
4000 ABV FWF  +73 WF1  +62 WF2  +83 DEV1  +6  DEV2  +1  AVG DEV  +3
4000 BLW FWF  +78 WF1  +65 WF2  +90 DEV1  +0  DEV2  -2  AVG DEV  -1
A1 EWRI          ALT TDEV  WIND   TAS  GS   ZD   AD   ZT  MACH
MCGUIRE          100  +1 2C0/ 24  287 304   84   81   17  . 45
  1- 417  80386  2-    0       0  3- 417  80386  4-  17   4889
  5-  45  11731  6-  15    5200  7-       0  8- 534 102206
  9-      2800 10-      105806  13-    21820  B/O-   85586
A2 KADW          ALT TDEV  WIND   TAS  GS   ZD   AD   ZT  MACH
ANDREWS          100  +2 257/ 25  287 262   78   86   18  . 45
  1- 417  80386  2-    0       0  3- 417  80386  4-  18   5191
  5-  45  11723  6-  15    5200  7-       0  8- 535 102500
  9-      2800 10-      105300  13-    22114  B/O-   85586
```

Figure 1. Side by side comparison of new MACPlan CFP on left and standard fixed track CFP on right.

numbers from the fuel manual and ETAs are omitted from the MacPlan but an endurance figure is computed. Normally, fixed track CFPs come with four alternates but MacPlan CFPs will come with only two alternates, one of which is usually out of the main weather pattern of the destination base. Flight planners have the option under MacPlan of ordering additional alternates if needed.

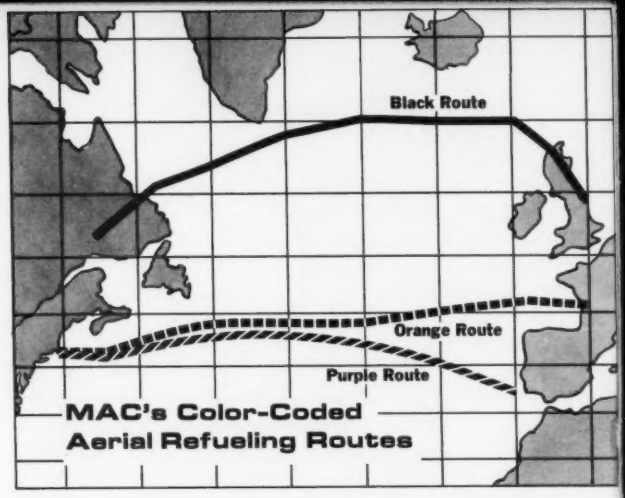
MacPlan CFPs come in three formats, C-141 or C-5 type, C-130 and T-39. Currently 15 aircraft are available in the MacPlan data base. These include C-5A, C-9A, VC-9C, T-39A, C-130A, C-130B, C-130D, C-130E, C-130H$_4$ (+18 drag index), HC-130H, HC-130P/N, C-135B, C-140, C-141A, and C-141B. The KC-10 is scheduled to be added soon for MacPlan CFPs.

Aircrews and CFPs

Aircrews can help improve MacPlan CFPs in many ways. If you notice an error in your CFP or don't get one, please call the appropriate flight planner. The flight planners can be reached at the following autovon numbers: 21 AF/DOCF, 440-2179; 22 AF/DOCF, 837-2448; and for T-39s, HQ MAC/DOOF at 638-4032. Usually the flight planner can help you track down your CFP (date/time group) or, if it's really lost, order a new one. (But remember, CFPs are not provided for routes less than 450 miles due to limited computer space at AFGWC.) If you are operating on a MAC scheduled mission and your aircraft goes into a maintenance delay, be sure to have the local command post give the MAC AF flight planner your new departure time.

To improve the AFGWC wind data base and to help the next crew who may be flying your route, please transmit the required aireps while you're still enroute. These aireps form the major portion of the wind and temperature data base over portions of the globe where AFGWC doesn't get a lot of observed wind/temperature data. The revised airep (AF Form 72) contains blocks for reporting your actual wind factor for the mission. Use a good average true airspeed (TAS) to properly compute this figure. If an airep indicates the need to revise a MacPlan CFP, the MAC AF weather support units (WSU) can get the word to other crews who may fly your same route and who may have or will receive a CFP that needs a wind factor update. Aireps are the key to these near term revisions.

If the average wind for a route segment exceeds 30 degrees error and/or 25 knots in velocity, be sure to make an inflight report or pirep. When this happens direct contact with the MAC AF Ops Center flight planner and/or WSU is needed. And one of the most important things you can do to make wind data accurate is to debrief the destination weather forecaster of the actual winds and weather you experienced on your flight. A good debrief can help the weather people at detachments and at the MAC AF weather support units pick out changes to brief the next crew. These same tips apply for aerial refueling CFPs that are centrally ordered from the AFGWC/WFF office at Offutt AFB, Nebraska.



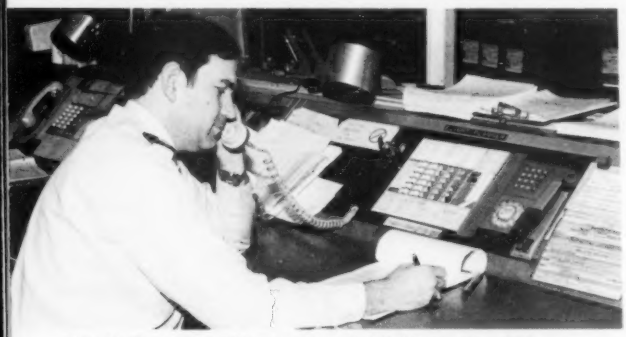
MAC's Color-Coded Aerial Refueling Routes

Aerial Refueling CFPs

Aerial refueling CFPs for C-5 and C-141 flights are produced under a separate computer software program at AFGWC. The AR CFPs are mission tailored for a specific aircraft type, TOGW, fuel load, fixed route, and selected altitudes and airspeeds for the differing portions of the route. The MacPlan or standard MAC fixed track CFP is based on the assumption that the aircraft will climb, cruise, descend, and land. The AR CFP uses a different software program that allows it to descend during the cruise portion for aerial refueling and climb back to cruise altitude following the AR. In addition, the CFP can depict multiple aerial refuelings.

The current MAC AR CFP does not integrate the aerial refueling route with the North Atlantic Track (NAT) structure for flights between the United States and Europe. The NAT routes change twice a day, and there's a long lead time involved in building the AR CFP. If a C-5 or C-141 aircrew intends to fly the NAT routes following aerial refueling, they must use two CFPs, one for the AR portion and another for the NAT crossing. The aircrew must link the end of the AR flight plan with a route that will take them to the NAT entry

21st Air Force Flight Planner, Capt John McTamney, orders a CFP over computer terminal located in 21st Air Force Operations Center, McGuire AFB, New Jersey.



21st Air Force Flight Planner, Capt Rob Williams, takes CFP phone order from crew.

point for the eastbound or westbound crossing. The flight planners at 21st Air Force currently build CFPs that transition from the AR exit to the NAT structure entry when needed.

MAC AR flight plans are produced for each operational mission at three different times. The first CFP is 30 days prior to the mission, the second CFP is 24 hours prior, and the third CFP is 7 hours prior to departure. Currently, approximately 20 C-5 and 30 C-141 AR operational missions (not including training) are flown each month.

One of the most exciting developments in MAC AR CFPs is the use of color coded routes across the North Atlantic. These routes use the upper airspace of the NAT region (FL 275 and above). Before 1981 MAC was restricted to conducting its aerial refuelings below the NAT structure. Two routes, for MAC aircraft black and orange, were established in June 1981. The black route is an AR route from Waco NDB in Canada to the United Kingdom. The orange route is an AR route between Nantucket vortac in U.S. and Cognac vortac in France. The MAC orange route aerial refueling area off the coast of France has been expanded to allow multiple tanker refuelings. In 1982 a MAC purple route was established between Nantucket on the east coast of U.S. and the Strait of Gibraltar at the entrance to the Western Mediterranean. This great circle route was built on the supposition that we may not want to overfly or may be denied overflight of certain areas during some contingencies. Each of these three routes can be used approximately once a week by C-5 or C-141 aircrews. These are short notice routes in that MAC can give the ATC agencies involved 24 hours notice prior to using them for contingencies.

MAC has contracted with Lockheed to produce an optimized AR CFP. MacPlan with AR option for single refueling is scheduled to be completed by October 1982. These flight plans should be able to combine the aerial refueling track and a flight on a NAT track into a single CFP. This will provide a much improved planning product for MAC AR aircrews than currently exists.

The Future

Air Weather Service is developing a data automation requirement, including MAC's input for the Air Force Advanced Computer Flight Plan (ACFP) system. The ACFP will integrate the CFP needs of the major commands (MAC, SAC, TAC, AFSC, etc.) into a single system with forecast operational date in 1987-1988. MAC is also looking for an improved communication capability for requesting and transmitting flight plans to aircrews. For the ACFP, MAC foresees the capability in each command post for the aircrew to order and receive their own flight plan. This capability would be available at the major MAC locations. For off-line stations, MAC will need a data link capability to be used by deployed crews and ALCEs.

MacPlan CFPs can help you to flight plan your mission and can save fuel, a vital national resource. By spotting errors and notifying weather units when significant wind changes occur, you can help make MacPlan work for you. Your feedback is essential for the computer flight planning system. Learn all you can about MAC's color coded routes within the North Atlantic for AR aircrews. And for the future, more CFP improvements are on the way. With the cooperative efforts of aircrews, command and control people and the weather folks we'll be able to have timely and accurate computer flight plans that depict those "changes in the wind."

No Free Ride

by Captain Roger J. Purcell
60th MAW Stan-Eval
Travis AFB, California

Landing in a C-141 at Pago Pago International Airport that August night was like landing anywhere else at night. You really couldn't see much of anything. Besides, who wants to go sightseeing at 2330? But it was the curse of MAC to fly through paradise and never crewrest there, or so I had been told.

After flight planning for Hickam, we ordered papaya and ice cream at the snack bar. We'd been awake for 10 hours and each of us had to stay awake for several more. The two other pilots on my crew were drinking cola. The engineers drank

Honorable Mention, 1981 MAC Flyer Safety Writing Contest

black coffee, of course, and the loadmasters were drinking iced tea. On my first flight after my "dollar ride" as third pilot, I was reluctantly having a cola too. It seemed "Burpo" had not made it this far south yet.

The stimulants would hopefully keep us alert for the 0145 departure. We bought our Samoa T-shirts at the duty free shop. I had to keep asking the pretty native clerk at the shop where she was from. I swore she was saying "Western Poland," but later I learned from the first pilot she was saying "Western Samoa." Yes, I was really alert.

The refueling was still in progress so we ordered some grilled sandwiches to go. By now, we were all "sinking"—we had been up only 11 hours, but the time zone changes had finally caught up with us.

The refueling done, we boarded our proud Starlifter. Tired or not, the crew impressed me as they professionally completed their checklists. As I sat in the jump seat, I wondered how many line trips it would take for me to reach the first pilot's level of proficiency, much less that of the AC?

Tower read us our clearance. "Honolulu Center clears MAC 50234 to the Honolulu airport via direct Laker, flight planned route. Climb and maintain flight level 370. Departure on 126.9. Read back."

"Now that's my kind of clearance. Piece of cake to copy," I chirped from the jump seat.

The instructor pilot in the right seat smiled knowingly at me and said, "Yeah? Wait till you fly in the United Kingdom and France!"

And I couldn't wait. Why, I was ready for Europe, the Atlantic—anything. Getting paid to travel all over the world in "my own" airplane was great.

The lack of levity and the laconic "clear left" and "clear right" responses reflected the augmented crew's cumulative fatigue after 5 days away from home station. The first pilot cranked the nosewheel steering confidently and briefed the takeoff.

"Takeoff EPR—1.71. Go speed—120. Rotate at 133. Minimum climbout is 142 and minimum flap retract speed is 167. Command markers left to right: Pilot—.70, 133, 37,000. Copilot—.70, 120 and 37,000. The minimum safe altitude within 25 miles is 3,200 feet. If we have to come back in on an emergency, we'll fly the ILS. We'll make a left turn out since we're cleared direct to Laker. Briefing complete unless there are any questions."

We made a right turn from Pago's only taxiway to backtaxi on 05 for a 180° turn. I couldn't see anything but the runway lights. The "viz" was 3 miles and the 600-foot overcast added a touch of gloom to the rainy night. The first pilot cranked in a full 60° of right turn with the nosewheel steering after moving to the left side of the runway.

The 180° turn in progress, he called, "lineup checklist." The stacatto challenge and response to the checklist gave me a great sense of confidence. Everything was working the way it should and we began our takeoff roll with the raindrops rolling off the windshield.

Gear up and flaps up, we nosed softly into the cotton clouds. We rolled into a smooth left turn, and the first pilot commanded, "Put present position direct Laker in the INSs." Laker was 100 miles out on the Tutuila vortac's 008° radial.

At the same time the flight engineer shouted, "Sir, I think there's some hills over here!"

"I've got it. Copilot's aircraft!" the instructor exclaimed as he took control and rolled in a fast 30° bank back to the right.

The first pilot protested, "Hey, we're cleared direct to Laker! Shouldn't it be a left turn? That's what it is on my HSI."

"No, there's something in the airfield restrictions that says to make a right turn out. Look that up for us, will you, jump? In any case, the right turn will take us out over the water until we get this sorted out."

Lemming! Wart,

you are a lemming!

I frantically searched the airfield restrictions the scanner handed me from the trip kit.

"What did you find, jump?" the instructor asked.

"Nothing," I said.

"Pilot's aircraft. Jake, you take it!" Our right-seater looked through the airfield restrictions, the Pacific IFR Supplement, and finally the approach book.

"Here it is!" the instructor shouted. "Runway 05, right turn heading 180° as soon as practicable. Maintain visual conditions within 2 miles of the airport until crossing the shoreline. All departures climb southbound between the Tutuila 060° radial and 210° radial to 3,200 feet then proceed on course."

From the left seat, Jake briefed, "Well, we're well through 3,200 now. I guess we can safely proceed on course to Laker."

There it was on page "x" of the IFR takeoff minimums and departure procedures. I read the restrictions to myself as the aircraft turned left to Laker. The engineer had to remind the pilot of the "after-takeoff-climb checklist" since the pilot section seemed to be in some kind of aftershock following our narrow escape from disaster.

The instructor pilot and the AC asked the engineer to figure where we would have impacted the mountains to the northeast of the field if we'd kept turning to the left just after takeoff. After some quick figuring, the engineer replied that it looked to him like we would have crashed about 1,400 feet up the side of the hills.

The AC turned to the flight engineer and said, "Mac, that was a good call." After a time he also added a sheepish, "Thanks."

The engineer answered for the pilots, "It could have happened to anyone. We were all tired. It was dark out and you couldn't see anything. And we don't come through here that often. When was the last time you departed out of Pago for Hickam, sir?"

I gathered it had been a long time, but I missed the answer when Hickam airways insisted we go ahead with our departure message after a lengthy phone patch.

The instructor pilot had sworn over the papaya and ice cream back at Pago that he would be the first one to use the crew bunk once we were airborne. "I can't sleep now," he said. "Go on, jump. You take it." So at his urging, I went back to the "loft."

I slept fitfully. I kept dreaming I was a fledgling King Arthur and that Merlin the Magician kept demanding of me, "What did you learn, Wart?"

"I guess the pilots should ensure they have terrain clearance even if ATC clears them," I answered the persistent pedagogue. "I was just sitting in the jump seat. I--"

Merlin interrupted me and yelled in my face, "Are you not a pilot, too, Wart? Where were you? There is no such thing as a free ride. Sit up straight and listen! You should have had terrain charts and the approach book out. There is no hope for you, Wart."

"Yes, Merlin," I replied with some chagrin. Defensively, I came back after a moment. "But the flight engineer caught it anyway, Merlin, even though it wasn't his job."

"Not his job!" Merlin raged. "Not his job! It's his life! He gets no free ride, either."

"But ATC cleared us," I protested.

"Lemming! Wart, you are a lemming! Have you never heard of a bad clearance?" he roared.

Merlin shook his finger in my face and my stomach tightened for the next onslaught. Just then, I awoke to the firm hand of the loadmaster shaking my shoulder. He looked vaguely like Merlin. Hmmmm.

"Sir," he said, "the AC wants everyone up. We're about to start our descent into Honolulu."

This time when I strapped into the jump seat, I had the approach book out. I jotted down the MEAs, minimum safe altitudes, and alertly rejoined the crew. Merlin had indeed been correct. There's no free ride—for any of us.

ABOUT THE AUTHOR

A 1967 graduate of the U.S. Military Academy, Captain Roger J. Purcell is currently a C-141 wing standardization pilot at Travis AFB. Captain Purcell flew C-123s in Vietnam and C-141s at Charleston AFB. He was a member of the Reserves from 1973-1979 and rejoined the Air Force in 1979. A senior pilot, Captain Purcell has over 4,600 accident-free flying hours.

EXCELLENCE IN AIRMANSHIP

Standing Left to Right: MSgt Daniel H. Beck, FE; Lt Col William A. Evers, AC; Major Michael Baker, CP; SSgt James L. Bond, FE. Kneeling Left to Right: SSgt Harry W. Greenstreet, LM; Sgt Jay A. Falkner, FE; MSgt James R. Brewer, FE; A1C Walter D. Bigley, LM.

Lieutenant Colonel Evers and Crew, 86th MAS. Lieutenant Colonel Evers and his Starlifter crew were flying a Bold Eagle 82 exercise mission bound for Florida. After about 10 minutes of cruise flight, Lieutenant Colonel Evers smelled a strange odor in the cockpit. The flight examiner flight engineer, Master Sergeant Daniel Beck, said something electrical was definitely getting hot. The instructor engineer and the scanner went down to the underdeck area to see if they could find anything unusual. At the same time Lieutenant Colonel Evers turned off the IFF because Salt Lake Center had just requested the IFF be recycled due to a loss of aircraft radar return. In addition, he pulled two circuit breakers on the emergency panel next to the pilot's position. After what seemed an eternity, the scanner reported smoke coming from the right underdeck area. The flight engineer instructor confirmed that the smoke and odors were increasing rapidly, but neither could find the source of the smoke.

The pilot directed the crew to don oxygen masks and/or smoke masks. After the scanner hooked up the intercom to his smoke mask, the loadmaster began preparing for the worst. He refilled several emergency walk-around bottles and aided the scanners. But still the smoke increased. The pilot immediately began the electrical fire checklist.

At this time the copilot notified ATC of the electrical problems and requested emergency return clearance back to McChord. The electrical fire checklist was completed and momentary maximum airflow was used to clear residual smoke and fumes. The instructor engineer removed the smoking IFF unit from the avionics rack and stowed it on the cargo floor. Lieutenant Colonel Evers completed the emergency return and landing without further incident. The IFF was found to have several components which had melted, welding the fuse blocks together and preventing power from being removed by these safety devices. The quick, coordinated response of this crew was crucial in averting serious damage to the C-141B and preventing possible injuries to the crew and passengers.

Captain Leighton C. Smith II was conducting C-130 initial qualification training with a student pilot at Blytheville AFB, Arkansas. While in level flight at 7,000 feet with the student pilot flying the aircraft, the control yoke went full forward to the stop. The aircraft pitched approximately 45° nose down resulting in a 0.8 negative G force. All four gearbox oil pressures went to zero, all propeller RPM's fluxed, and then settled down to normal.

Captain Leighton C. Smith II, IP.

Captain Smith immediately took control of the yoke and, by exerting extreme back pressure, leveled the aircraft at 5,600 feet. Total elapsed time was less than 8 seconds. With elevator boost on, Captain Smith returned to Little Rock using minimum inputs on the flight controls. He landed the aircraft without incident following a straight-in ILS approach. Captain Smith's decisive actions were instrumental in preserving a valuable Air Force aircraft.

Don't Get Rolled

Beware of Dynamic Rollover.

The crew of the Army OH-58 was participating in a large training exercise. One of the exercise controllers was on board, but his effectiveness was greatly hampered by the failure of the aircraft's FM radio. This made it necessary for the crew to land periodically to coordinate with ground personnel.

About an hour and 15 minutes into the third sortie of the day, the pilot approached a prospective landing site. Unable to land because of an excessive slope, he decided to reposition to an adjacent area which appeared to be more suitable. Hovering toward the site in an easterly direction (the winds were from 190° at about 10 knots with occasional gusts to 14 knots) he began a straight-ahead landing. With a 6° upslope the pilot lowered the collective until the right skid touched the ground. He continued to lower the collective until he reached a point where he decided the slope was excessive. The pilot told the copilot he thought the slope was excessive and he was going to reposition and try another landing. As the pilot increased collective to lift off, the aircraft started a rapid roll to the right. Unable to recover from the quick rolling motion, the aircraft hit on its right side. It rolled over with the rotor blades flailing wildly, chopping up the aircraft and hampering the crew's escape from the cockpit. Fortunately both crewmembers sustained only minor injuries but the aircraft was destroyed.

The cause of this near-disaster was pilot-induced dynamic rollover. Dynamic rollovers are always a result of the human factor. They are not unique to the military either. Six percent of civilian rotorcraft mishaps have also been attributed to rollover. Knowledge and proper flying techniques, however, can prevent these needless mishaps.

During normal or slope takeoffs and landings with some bank angle or side drift and with only one skid on the ground, the helicopter can get into a situation where it is pivoting about the skid (or wheel). When this happens, lateral cyclic control response is more sluggish and less effective than for a free-hovering helicopter. Consequently, if the bank angle is allowed to increase past about 15 degrees, the helicopter will enter a rolling maneuver that cannot be corrected even with full cyclic and will roll over on its side. In addition, as the roll and acceleration of the rolling motion increases, the angle at which recovery is still possible is significantly reduced. The critical rollover angle is also reduced for a right-skid-

down condition, crosswinds, lateral center of gravity offset, and left pedal inputs. The worst case is probably during conditions of high gross weights at high altitude and high temperature when the right skid is in contact with the ground. In this condition, if the thrust (lift) is approximately equal to the weight, *any* bank angle may put the helicopter in jeopardy.

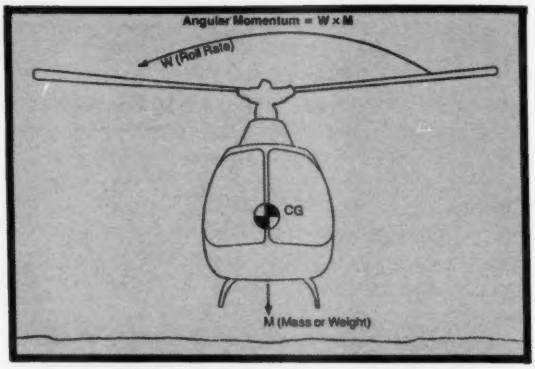
How to Avoid Getting Rolled

When performing maneuvers with one skid on the ground, care must be taken to keep the helicopter trimmed, especially laterally. If a slope takeoff is attempted for example, and the tail rotor thrust contribution to the rolling moment is not trimmed out with cyclic, the critical recovery angle will be exceeded in less than 2 seconds.

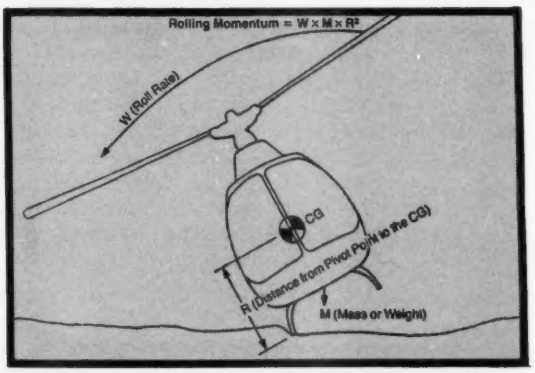
Control can be maintained if the pilot maintains trim, does not allow roll or yaw rates to become excessive, and keeps the bank angle from getting too large. The pilot must fly the helicopter into the air smoothly, keeping excursions in pitch, roll and yaw low. When performing normal takeoffs and landings on relatively level ground with one skid on the ground and especially when lift is approximately equal to the weight, be careful to maintain the helicopter position relative to the ground. Perform manuevers smoothly and keep the helicopter trimmed so that rates of movement don't buildup, especially roll rates. If the bank angle starts to increase to a large angle (5° to 8°) and full corrective cyclic does not reduce the angle, reduce collective to counter the unstable rolling moment.

When performing slope takeoff and landing maneuvers, follow the published procedures for your particular helicopter, being careful to keep roll rates small. Slowly raise the downslope skid to bring the helicopter up to a level attitude and then lift off. If landing, touch down on one skid and slowly lower the downslope skid. If the helicopter rolls to the upslope side as much as 5° to 8°, reduce collective to correct the bank angle and return to level attitude and then start the takeoff procedure again. Collective is much more effective in controlling the rolling motion than lateral cyclic because it reduces main rotor lift. A smooth, moderate collective reduction of less than approximately 40 percent (or a rate less than it would take to go from full-up to full-down collective in about 2 seconds), should be adequate to halt the rolling motion. But care must be taken not to lower collective so rapidly to cause fuselage-rotor blade contact. Additionally, if the helicopter is on a slope and the roll starts to the upslope side, reducing collective too fast creates a high roll rate in the opposite direction. When the downslope skid hits the ground, the dynamics of the motion can cause the helicopter to bounce off the upslope skid and the inertia can cause the helicopter to roll about the downslope

Photos courtesy US Army *Flight Fax*



In normal free flight condition, all roll motion is around the helicopter's center of gravity (CG), and roll momentum is a product of roll rate and mass only.



With one wheel or a skid in contact with the ground, the roll rate is magnified by the distance between the CG and the new pivot point and can quickly exceed available roll authority.

skid and over on its side. Do not pull collective suddenly to get airborne because a large abrupt and possibly uncontrollable rolling moment in the opposite direction may result.

Huey Slope-Landing Techniques

The same problems can arise in any single-rotor helicopter although the area of critical rollover will vary, depending on vertical and lateral CG, landing gear configuration, or tail rotor thrust moment. The following techniques are offered to increase your awareness of the dangers of dynamic rollover in UH-1 series aircraft:

- Less lateral cyclic control will be available during crosswind operations with the wind coming from the upslope side.
- Slope operations should be avoided with tailwind conditions.
- Less lateral cyclic will be available when the left skid is into the slope due to the translating tendency of the tail rotor.
- If passengers or additional crewmembers are picked up or offloaded after landing, the lateral cyclic requirement will change and must be reevaluated prior to lift off.
- The interconnecting fuel line between tanks can cause unbalanced loading laterally due to fuel slosh or gravitational flow of fuel to the downslope tank. This shift of CG varies depending on fuel load, slope gradient and length of time the helicopter has been laterally inclined.
- A slope of 5° to 8° can usually be accommodated safely without encountering mast bumping or reaching lateral cyclic limits. During slope landing, consideration must be given to the combined efforts of slope gradient, wind, load position, and soil stability.
- If cyclic limits are reached during slope operations, further lowering of the collective may induce mast bumping. Therefore, if the cyclic control contacts the stop before the downslope skid is resting firmly on the ground, return to a hover and select a position with a lesser degree of slope.
- If, during takeoff from a slope, the upslope skid starts to leave the ground before the downslope skid, smoothly lower the collective and check to see if the downslope skid is "stuck" or "caught" on some object. In short, make the helicopter do what you want it to do before it becomes uncontrollable. Accept nothing less than a smooth, vertical ascent.

The dangers of dynamic rollover are not restricted to slope operations. Rollover mishaps have occurred on level surfaces also. But the fact that a skid gets caught on PSP or stuck in soft asphalt doesn't necessarily mean that helicopter rollover is inevitable. The end result depends on the person at the controls and how quickly and accurately the pilot analyzes the problem and begins corrective action. Improper or sudden control inputs can aggravate the situation. Handle the aircraft with all the tender-loving care it deserves and you won't "get rolled."

—Adapted from US Army *Flight Fax*

MAC INDIVIDUAL FLYING-HOUR MILESTONE AWARDS

5,000

Col John P. O'Keefe, 18 MAS
Col John V. Small, 6 MAS
Lt Col Tilden M. Angell, 156 TAS
Lt Col Phillip A. Cooke, 30 MAS
Lt Col Michael J. Brown, 22 MAS
Lt Col Damian G. Evans, 3 MAS
Lt Col Karl A.D. Goss, 18 MAS
Lt Col Frank P. Fisher, 301 ARRS
Lt Col Robert Grutzik, 3 MAS
Lt Col Bernard L. Hothem, 18 MAS
Lt Col John C. Long, 4 MAS
Lt Col Jerome L. Nelson, 18 MAS
Lt Col John P. O'Hanian, 18 MAS
Lt Col Warren D. Snyder, 301 ARRS
Maj Larry M. Almand, 30 MAS
Maj James A. Anderson, 30 MAS
Maj Joseph H. Barnhart, 301 ARRS
Maj Ronald A. Cathey, 3 MAS
Maj Joseph R. Connelly, 301 ARRS
Maj Jack E. Eanes, 3 MAS
Maj Keith G. Lauer, 301 ARRS
Maj Harry Meloeny, Jr., 30 MAS
Maj Charles J. Polk, 37 TAS
Maj Ernest T. Randall, 30 MAS
SMSgt Johnnie L. Battle, 30 MAS
SMSgt Paul Harvell, 30 MAS
SMSgt Leonard W. Swallom, 75 MAS
MSgt Jose A. Alberio, 95 TAS
MSgt Marvin E. Delozier, 96 TAS
MSgt Carl M. Duncan, 18 MAS
MSgt Kenneth G. Gatewood, 86 MAS
MSgt Charles G. Hillberry, 911 TAG
MSgt Aubert L. Keaton, 6 MAS
MSgt Neil W. Messick, 3 MAS
MSgt Ronald S. Nagy, 22 MAS
MSgt Lloyd W. Nauman, 139 TAG
MSgt Nathaniel Norwood, Det 1, 89 MAW
MSgt James F. Renshaw, 301 ARRS
MSgt Robert T. Romph, 301 ARRS
TSgt Jimmy L. Bryant, 30 MAS
TSgt Neal R. Choiniere, 8 MAS
TSgt Robert M. Fox, 3 MAS
TSgt James H. Harris, 86 MAS
TSgy Richard MacQuarrie, 18 MAS
TSgt Arthur J. Parnham, 6 MAS
TSgt Richard O. Shults, 55 WRS
SSgt Nathaniel J. Riddick, 30 MAS
SSgt Gene G. Washington, 3 MAS

2,500

Lt Col Robert F. Kujawa, 301 ARRS
Sqdn Leader Gordon A. Monaghan, 1551 FTS
Maj Robert R. Smedley, 301 ARRS
Capt Marvin C. Champion, 39 ARRW
2d Lt John W. Sharp, 55 ARRS
TSgt Jack E. Mabry, 1551 FTS
SSgt Clinton R. Solt, Jr., 1550 FTS

(ranks and units are those at time of award).

Mishap with a Moral

Two Legs Too Long

After a long day of flying, including several instrument approaches in near-minimum conditions, the captain and copilot of the DHC-6 "Twin Otter" were looking forward to the end of what had been a long, taxing day. Upon arrival at their last scheduled stop, however, they were informed they would have to fly two more legs. The captain of the small commuter liner became visibly upset when given the bad news, especially when it meant flying the approaches in less-than-optimum weather conditions—at night. Over the day's routes the ceilings had been intermittently as low as 200 feet and the visibility as low as three-fourths of a mile in fog. By the end of their day, the crew of Flight 248 would have compiled almost 15 hours with over 9 hours in the air.

The first leg to LaGuardia via an enroute stop went smoothly except that the captain had failed to set up his instruments correctly for the ILS back-course approach at the enroute stop. As soon as the copilot became aware of the problem, he advised the captain and the instrument configuration was corrected. No other problems were encountered until the crew checked the weather for the return flight home, via the final add-on enroute stop. Here they realized the weather for the last stop before the end of the line might not allow an approach or landing. After discussion of the alternatives, the pax bound for the enroute stop decided to remain at LaGuardia rather than risk missing their destination. At 2132 local time, the DHC-6 took off with eight passengers for the "last leg of the day."

At 2232, Flight 248 contacted approach control and reported level at 5,000 feet. Approach control then relayed the destination weather which included an indefinite ceiling of 200 feet with the sky obscured. Visibility was reported as three-fourths of a mile in fog with the wind out of the south-southwest at 10 knots. Runway 24, the landing runway, was reported to have a visibility of just over a mile in light drizzle. After a vector to intercept the localizer, the flight was told to contact the tower. At 2247, Flight 248 contacted the tower, reported crossing the outer marker, and was cleared to land. No further transmissions were heard from the aircraft.

According to a radar summary of the flight path of Flight 248, the DHC-6 under the control of the left-seater began a descent to intercept the glide slope at 2247. Fifteen seconds later, the aircraft leveled off slightly above the 3° glide path and then went further above the glide path. After going approximately "2 dots high," the captain of

the commuter liner started a controlled, although rapid descent which carried the plane from 2 dots high on the glide path to just below the glide path. The copilot called minimums as the aircraft continued its descent, now going well below the glide path. As he called "100 feet below," the copilot looked outside the cockpit, believing the captain had the approach lights in sight. Later, the copilot said he did not see the ground at this time.

The initial impact, which occurred at 2248, was about 30 feet above the base of some trees in a heavily wooded area approximately 1.5 nautical miles from the approach end of runway 24 and on centerline. As the aircraft descended through the trees at descent angles varying from 4° to 20°, approximately 14 feet of its left outboard wingtip and approximately 6 feet of the right outboard wingtip were torn away. As the plane decelerated, the Captain's harness failed and he was subsequently thrown through the windshield sustaining fatal injuries. All the other occupants, however, received only minor or no injuries.

Analysis

Although the cause of this crash may be readily apparent to some, this mishap has several causes which lie beneath the obvious. First of all, the captain had a long and well documented history of hypertension—high blood pressure. He also had an adnormal carbohydrate metabolism which may have indicated the presence of chronic hypoglycemia or diabetes.

He had been removed from active flying status many times while both a military and civilian aviator due to his chronic hypertension but had always managed to have his flying privileges reinstated. At the time of the crash, the captain was taking *polythiazide,* a diuretic to control his hypertension, and *allopurinol* to control gout. And although both drugs are waiverable by the FAA, the aviation medical examiner who administered the captain's last physical claimed he had no knowledge of the captain taking these particular drugs.

Next, the left-seater had two particularly bad flying habits which were well documented. He had a tendency to fly the classic "duck under" maneuver, i.e., he would typically descend below a precision glide path well before the missed approach point in an attempt to attain VMC as soon as possible. He was also known to deviate from standard checklist procedures and fail to acknowledge the standard "callouts" from his copilots while flying instrument approaches.

Combined with several other factors, the mishap begins to appear as if it were an "accident waiting to happen." The Captain was a high-strung person and was very irritated at the proposition of flying two more legs in an already long crew-duty day. Throughout the day, he had had only a cheese-danish and a cup of coffee and that "meal" was consumed just before the last two legs. Coupled with his documented physical condition (abnormal carbohydrate metabolism), it appears the captain was exhibiting some of the symptoms of hypoglycemia—inattention, fixation, and failure to respond to outside stimuli in the form of the copilot's voice, the instruments, etc.

The aircraft continued its descent, now going well below glide path.

But the list continues. Also listed as contributing factors were the crew's uncoordinated response to a dangerous condition—descent below the glide path. Given the pilot's mental state and his documented disregard of both copilots and checklists, we can clearly see the potentially deadly situation developing. Now, add a copilot serving in a probationary status pending full employment and his subsequent reluctance to correct a gruff-natured, emotionally irritated company vice-president acting as pilot-in-command and the situation deteriorates even further. Combined with the effects of a long crew day and inadequate diet and now the situation is ripe for disaster. Mix in the final fatal ingredient, marginal weather conditions at night, and there you have it—a flight that was two legs too long.

—Adapted from NTSB-AAR-80-1

The Nightingale Shuttle:

Patients, Paella, and Professionals.

by Captain Gale E. Clouse, Jr.
Associate Editor

"Welcome aboard MAC aeromedical evacuation mission 1065." With that cheerful announcement, Captain Carol Deason, C-9A medical crew director, welcomed us aboard today's flight to sunny Spain. Our itinerary would be via Zaragoza, Rota Naval Station, and Torrejon, and after a brief stop at Ramstein Air Base, the crew would head back to Rhein-Main Air Base. A "whirlwind" tour for me, the mission was typical for the crewmembers of the 55th Aeromedical Airlift Squadron (AAS) and the medical crew from the 2d Aeromedical Evacuation Squadron (AES), both based at Rhein-Main Air Base, Germany. And on today's flight all of us would experience "the Nightingale shuttle."

Several hours before Captain Deason's patient briefing, our aircraft commander, Captain Donald Weimer, along with the rest of the crew, had begun preparations for our southern sojourn. After a comprehensive weather briefing, Captain Weimer then checked notams and filed several DD Form 1801 ICAO flight plans for our multi-destination flight (can't file stopover flight plans under current ICAO rules). After arriving at the standard white-and-grey C-9A, the rest of the crew assembled for the usual crew briefing. Captain Deason, an instructor flight nurse, gathered the medical crewmembers for one last briefing before departure (to say every facet of the mission was thoroughly briefed would be an understatement). Anyway, it turned out our mission today was to pick up some patients in Spain who required some specialized treatment back in Germany.

Our takeoff out of Frankfurt was smooth and 5 minutes ahead of the scheduled 9 a.m. departure time. As one accustomed to "0-dark-30" departures, I wondered if this was really a MAC unit, but I soon discovered it certainly was and that the 55th AAS and 2d AES crews were true professionals. They stressed the importance of running a reliable and tightly-scheduled operation because any delay could directly affect the patients' well being.

In addition to Captain Weimer, the flight included Captain Jeff Rolfs, the copilot, and Sergeant Donald Arseneaux, the flight mechanic. Both Captains Weimer and Rolfs had come straight to Nightingales from pilot training.

The medical crew on today's flight was conducting training in addition to their normal duties. Captain Linda McDonald, a reserve flight nurse from the 31st AES at Charleston, was

getting her initial C-9A flight nurse evaluation from Captain Deborah Kelly of the 2d AES.

The three medical technicians on this flight were Staff Sergeants James Perdue, Michael Beuclair and Sergeant Paul Dawson.

The training conducted on C-9A airevac missions is important. Their wartime mission includes airlifting the sick and wounded to rear-area hospitals. During other crises, the crews may be called upon to airlift disaster victims or others that need help. A good example was the vital role played by C-9 crews in evacuating the former American hostages after being released by their Iranian captors. Even during "peacetime," patient airlift missions take these C-9s and their crews to the Middle East, Northern Africa,

and all over Europe. To make sure they are ready for any situation, the 55th AAS keeps a flight crew and one C-9 on alert

at all times. The 2d AES maintains two medical crews on alert. And they are ready and trained to perform their medical duties on other types of aircraft too. Their alert responsibilities also include flying on the C-141s or C-130s for any emergency missions that may occur. The 2d AES averages four to eight such urgent air evacs per month. The alert crews have to be ready to go in 30 minutes for a C-9 mission or 1 hour for a Starlifter mission.

The Sorties

Out of Germany we climbed smoothly to FL 370 for the flight to Spain. Over France the pilots of the C-9 spotted a converging aircraft on the windscreen. At almost the same instant, ATC called us up and vectored us behind the aircraft, a Boeing 747, which had been at our flight level. It was our only traffic conflict of the day, but the crew kept a watchful eye anyway. After touching down in Zaragoza, we were greeted in our parking spot by a long, blue air-evac patient bus painted with a red cross. Also we were welcomed by the familiar fire truck that always accompanies all C-9 airevacs during ground operations when litter patients are onboard.

The key to the Nightingale shuttle was the short ground times at each stop. I was used to 2 hour 15 minutes ground times on many MAC missions but we only spent 45 minutes at Zaragoza and Rota and 50 minutes at Torrejon on this C-9 flight. During each ground stop the airplane was refueled for the next leg by the flight mechanic and/or ground crew. One pilot stayed at the aircraft while the other one went into the base ops for a weather and notams update. A quick check of the flight clearance, and a phone call to the Aeromedical Evacuation Control Center (AECC) at Rhein-Main AB for any new patient information completed that part of our stop. Meanwhile the medical crew director checked the medical records of the incoming patients as the med-techs prepared the cabin for the new patients and passengers. The med-techs also act as loadmasters of a sort and checked the patient/passenger baggage for the flight.

About 2:00 p.m. the famished crew ordered a "crew lunch to go" at Rota. A "gourmet's delight," the lunch consisted of paella, "grease" burgers, chicken and fries. And a 45-minute ground time was not exactly sufficient to relax and enjoy the culinary delights of the Rota snack bar. We did have a schedule to keep and not even paella would keep us from meeting our frag.

On the leg back to Ramstein, Captain Rolfs described Europe as an excellent place to learn about flying. He mentioned the different countries, languages, the differing transition altitudes, the use of millibars for QNH, as well as the requirements for diplomatic clearances for various flights. In a two-person cockpit Captain Rolfs stressed the need for each pilot to help crosscheck each other. In Europe's high desnity air traffic, "see and avoid" procedures were particularly emphasized. Both cross-checking and using "see and avoid" enhance flying safety for these C-9 airevac flights.

Nature had prepared a small surprise for us back at Ramstein. We encountered low ceilings and thunderstorms in the Ramstein local area. It was Captain Rolfs' approach, and his first one with rainshowers in the terminal area at a European base. The descent had gone smoothly. In fact Captains Weimer and Rolfs had paid special attention to making the patients' ride as smooth as possible. Going into Ramstein we finally broke out prior to short final approach and landing. We got a little light chop as we flared and the landing roll was a little long on the wet asphalt. The crew had one more stop in their 14-hour crew-duty day—the short trip back to Frankfurt. Captain McDonald, the nurse-in-charge of patient care, had worked hard and passed her checkride. She was scheduled to return to the States shortly, having completed her 14-day active duty tour flying the C-9s in Europe.

The 55th AAS and the 2d AES crews had safely completed another important airevac mission. Their professionalism in this mission is but one example of the professional aircrews safely flying in MAC's worldwide system. It is this system that moved over 68,000 patients in 1981 without any serious mishaps. The aircrews and medical crews of this system stand ready in peace or war to provide medical care to sick and wounded people while safely transporting them to medical facilities.

DEJAVU

Sigonella Airfield, Italy

(Elevation: 79 feet)

Located on the east coast of Sicily, Sigonella Airfield is 10 miles southwest of the city of Catania. Sigonella has one runway, 28, 8,000 feet long and 148-feet wide. The taxiways and parking ramp are to the north. Circling is not authorized north of runway 10/28.

There are high terrain features and obstructions north, south and west of the field. Most prominent is majestic Mount Etna, 10,902 feet high and located 21 miles north of the runway. Terrain 4 miles south of the field, rises to 357 feet MSL.

Instrument approaches include VOR, NDB, tacan, PAR and ASR. If upon arrival in the Catania area descent instructions are questionable or inadequate, don't be hesitant to request descent in a published holding pattern. Extreme caution should always be used when executing any approach into Sigonella. Don't confuse Sigonella with Catania/Fontanarossa, however, which is located approximately 8 miles northeast of Sigonella.

Sigonella is suitable for C-130 and C-141 aircraft. It's also suitable for C-5 aircraft when the portable optical landing systems are moved to the extreme limits of their tracks.

Airlifters should consult the 21st Air Force airfield restrictions before landing at this sunny Sicilian air base.

—Adapted from AQP 51475

On short final, runway 10. The parking ramps are to the left. The Mediterranean Sea is in the background.

On short final, runway 10.

On short final, runway 28. The high terrain in the background begins 8 miles from the departure end of the runway. Do not mistake the concrete taxiway to the right for the runway.

C.R. TERROR

The Punchy Pilot pulls a punch bowl faux pas.

June is bustin' out all over . . .," cheerfully chirped the Chopper Chieftain over hot mike to his stalwart HH-53 crew. "What an evening for a few turns around the pattern, hey Sam?"

"Certainly is, Boss," agreed Long Suffering Sam the second-in-command to the One-and-Only C. R. Terror. About this time, the Magnificent Major brought the big helicopter up abruptly into a hover and immediately accelerated the "Super Jolly" to forward flight. The sun was just setting and the brilliant glow in the western sky bathed the English countryside in bright gold and orange hues.

"Looks like we're the only ones up this evening, so we'll get all our night requirements out of the way with no problems," C.R. encouraged.

"But we haven't got clearance to takeoff yet," blurted Sam, who quickly called tower requesting a hasty clearance before his Aircraft Commander made the effort pointless.

"Roger, Jolly 13," replied the tower controller. "You're cleared for takeoff."

"Wow, that was close," sighed Sam.

"What?" exclaimed C.R. in mock astonishment. "You mean you've never seen a high-speed hover-taxi check before, hee, hee?" chuckled the Flaky Flyboy who always seemed to come up with some excuse for even the most careless, not to mention unsafe, shenanigans.

Climbing straight ahead to avoid the housing area, the helicopter crew quickly reached pattern altitude. "How about ringing up approach control and have them pick us up for yon good olde PAR approach. What say ye, Sam m'lad?" chided the Knight in Nomex Armor. "By the way, Sammy. Did I ever tell you about the time I rescued the entire UCLA women's volleyball team from a sinking fishing boat . . .?"

Just as MAC's most celebrated yarn-spinner was getting warmed up, approach control interrupted. "Jolly 13 your operations would like a chat with you. Sounds rather urgent, over."

"Jolly 13, rescue ops. We've got a possible emergency medevac of a civilian for you. They've just taken him to the infirmary. Request you land, refuel and standby for possible launch, over."

"Roger, dodger," replied C.R., instantly breaking off the instrument approach. "Call tower for landing, Sam, and request a fuel truck meet us. Looks like we could be flying a 'real' mission tonight instead of chopping up the air around the old flagpole." The Magnificent Major made an approach to the parallel taxiway and quickly parked the big helicopter. "We'll monitor the radio until the fuel truck arrives," directed C.R. A good thing, too, because just as he said it, the radio crackled to life with a message from ops.

"Jolly 13, have your PJ report to the infirmary ASAP to help prepare the patient for the flight. You'll definitely be taking him to the medical center at Yorkshire."

"Roger," returned C.R., his voice reflecting the surge of adrenaline coursing through his flabby physique in anticipation of a possible life-or-death medevac. "Hey Sam," he said turning to his crew. "I want you and Sergeant Torque to go with Sergeant Swift to help out. I'll stay here and throw on enough gas for the trip and make sure

we're ready to turn rotors as soon as you guys get back."

Without a word, the copilot, flight engineer and pararescue specialist all ran to the waiting van and drove off toward the small infirmary, passing the fuel truck coming in the opposite direction. C.R. helped the refueling specialist hook up the extra ground wires.

Just as the refueling was complete, C.R. sighted the flashing lights of the ambulance carrying the patient and the rest of the crew coming toward the aircraft. Rushing to get ready, the Hurried Honcho performed a "runaround" inspection, then bounded up the steps and into the cockpit. With hands and arms going in all directions flipping switches and turning knobs, the Flailing Flyboy had the APU started and the engines running before his cohorts had the litter patient inside the cargo door. Obviously, C.R. didn't think it was necessary to bother with such amenities as fire guards or crew checklists on such occasions. As Sam jumped into the left seat, pulling on his helmet in the process, C.R. was already talking to Sergeant Torque in the back.

"Don't bother about the walkaround, Sarge. I took care of everything. Clear for rotor engagement," ordered the Fast-paced Flyer as he released the rotor brake.

Sam called for taxi-takeoff clearance. "Roger, Jolly 13, cleared for standard VFR departure. Maintain runway heading until past field boundary."

C.R. quickly brought the HH-53 to a hover and immediately pushed forward on the cyclic stick accelerating the big helicopter into forward flight. "Gear up and clear right, Sam," ordered C.R.

"But sir, that will take us over the housing area," protested the quick-witted copilot.

"Sammy, m'boy, those silly restrictions are for your normal, mundane, day-to-day operations. They don't apply to a real mission like the one we're on. Besides, I know a short cut to Yorkshire that will cut at least a whole minute off our enroute time. Every second counts, you know."

"I suppose you're right, Boss."

"Why of course I'm right. I'm always right," asserted the Helo Honcho. They continued climbing out over base housing and were accelerating past 80 knots when suddenly a loud banging noise reverberated through the aircraft like the "rat-tat-tat" of machine-gun fire. "Ground fire!" shouted the momentarily disoriented veteran before realizing this was Suffolk and not Saigon.

"Sounds like a compressor stall," shouted someone over the intercom.

"But the engines look good," checked Sam. Then, just as suddenly as it had begun, the noise ceased. "Do you want to land and check it out?" asked the concerned copilot knowing his plea was merely a formality.

"If you're serious, you've got to be kidding, Sammy m'lad," chided the Rotund Rotorhead. "What ever it was, it's not doing it any more, we're still flying and all the gauges are in the green. We can't be delayed by every little extraneous rumble or bang that goes 'bump in the night,' right Sam?"

A short flight later, they landed at the medical center and Sergeant Swift, always the true professional, stayed with the patient and attending physician until he had his charge safely inside the hospital and had briefed the emergency-room staff. A few minutes later, he returned and C.R. asked how things went at the hospital.

"Looks like they're going to do an appendectomy on the fellow," reported Swift.

"Well, at least we did our part," commented C.R. proudly. "Now let's saddle up and head back to the barn."

About 10 miles out from home station, rescue ops again came up on the radio. "Jolly 13, be advised that Brigadier General Rugby will be meeting the aircraft along with Colonel Husky, over."

"Roger," replied Sam, looking quizically over at his AC. "Why would the USAFE area commander and our rescue commander want to meet us as soon as we touch down?"

"Why? It's as plain as the nose on my face, Sam," explained C.R. "We're about to be personally congratulated on this evening's life-saving exploits."

"I hope so, Boss," sighed his gun-shy sidekick.

Just like ops had said, there they stood on the edge of the ramp as C.R. and his crew shut down. "Wow!" remarked the Ambient Aviator to his cohorts as they approached the waiting "brass." "The general's even wearing a mess dress uniform. Maybe the guy we saved was some 'big-wig,' huh, Sam?"

General Rugby, standing with his hands folded behind, was resplendent in his white Air Force mess dress—except for some peculiar red dots sprinkled over the jacket. C.R. stepped up and saluted as smartly as his countenance would allow, and was about to greet the general, but Rugby started first.

"You *are* Major Terror I presume—the aircraft commander of that HH-53?"

"Yes sir, I'm proud to say I

am," conceded C.R., instinctively throwing out his chest until it was almost even with his tummy, and pulling himself up to his full, but still underwhelming height.

"Well, Major Terror, first I'd like to congratulate you and your crew for delivering the ambassador's chauffeur, Mr. Bowls, safely to the Yorkshire hospital. He was struck ill shortly after the ambassador's arrival for a garden party we were hosting this evening." C.R. surreptitiously nudged Sam's shoulder as if to say "I told you so," and began accepting the general's apparent high praise.

"Well, thank you sir. We were just—." The general was not finished and silenced C.R. with one raised finger, then dismissed the rest of the crew, thanking them again for their life-saving efforts. He then turned to C.R. with a less generous expression.

"However, since you were the only aircraft in the pattern tonight, I can safely assume this belongs, or should I say belonged, to you." With that, Rugby pulled from behind his back what appeared to be a tangled knot of heavy wire, complete with a "remove before flight" streamer. C.R. was honestly mystified about the knot of cable.

"Where did you get that, uh, that is, if you don't mind me asking, sir?" he stammered.

"In my back yard," the general said, raising his voice slightly. "More specifically, out of the punch bowl after it came whistling down out of nowhere, narrowly missing the ambassador's wife by not more than 2 feet and showering her and me with this delightfully red concoction. That's where I got it, major." Rugby was just getting warmed up. "And do you know what she was wearing major? It was an original Letour gown her husband, the ambassador, had just given her for their anniversary. Tonight was the first, and last time she wore it. The gown is completely ruined. But that's not all." The smoking one-star was now really cooking, seething with fire. "She then fainted right over into the chocolate mousse! Had the wire hit her, you would probably have had to medevac the ambassador's wife, also. But as it is, you only have to answer to your commander, Colonel Husky, as to why you violated the local flying restrictions by flying over the housing area, which is strictly prohibited, even on SAR launches. Isn't that right, Colonel?" he concluded, turning toward the rescue commander.

"That is correct, sir, and we'll also have to determine the cause of this near-disastrous dropped-object incident."

Needless to say, C.R. by this time had begun to revert to his normal proportions, looking much like a ballon with a slow leak. He meekly acknowledged his commander's "request" for a "counseling" session bright and early the next morning.

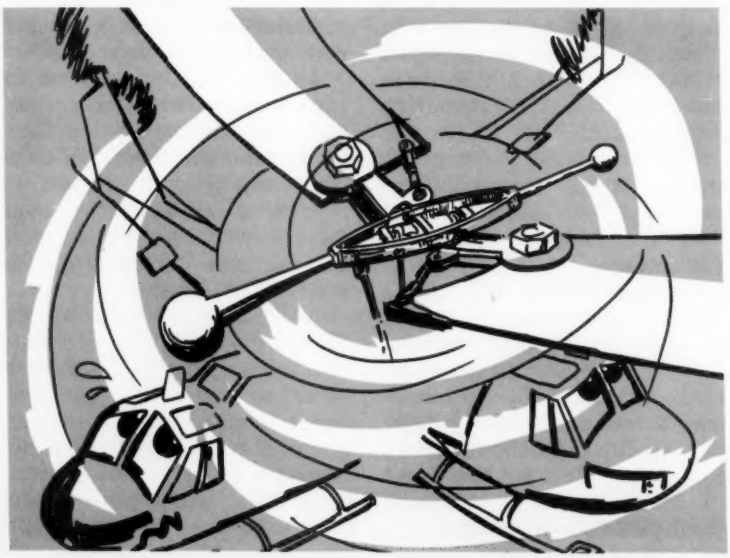
As the two DVs returned to the waiting staff car, the Humbled Honcho walked back to the aircraft where his crew was standing out of ear shot.

"What's up, Boss?" asked Sammy who had a suspicion that all was not peachy with their fearless leader.

"Well, at least he thanked us for the medevac," he said with the same pensive look that emerged every time he was about to come up with another bright idea. "Now all I have to do is come up with one perfect copy of a Letour original, an extra large mess dress jacket, *or* a one-way ticket on a moon shot that leaves before 0800 tomorrow morning."

Torqued Off

The HH-1 crew was on an afternoon parts run and was anxious to beat some bad weather forecast for their destination. The pilot briefed the best airspeed for flight at between 105 and 110 knots to conserve fuel yet still complete the mission. Run-up and hover checks were normal, but shortly after takeoff the crew experienced a vertical beat while accelerating through about 90 knots. The pilot increased collective to obtain the prebriefed cruise airspeed. Somewhere along the way, however, the torque indicator went past the 49-psi red line. Neither pilot noticed the accelerating torque indications because both were scanning for traffic. As the aircraft approached 110 knots the crew felt several large oscillations and the pilot instinctively lowered the collective to reduce power and noted the torque *decreasing* through 55 psi. Realizing that such an overtorque could be hazardous to their health, our intrepid aviators decided it would be better to be safe than sorry and made a precautionary landing. The Huey was then trucked back to the base and the following parts were removed and replaced: transmission, mast, main rotor blades, hub, input drive shaft and associated transmission quills. Total cost for this momentary "oversight" was $21,967.



Birds of a Feather

It was obviously a case of overt aggression. An unsuspecting C-130 crew was flying a local training mission a short distance away from their busy home drome. They had picked a nearby airport which normally had less air traffic. Their Hercules neared the threshold on its initial ILS approach when suddenly, at 50 feet above the runway, a flock of birds attacked the aircraft. The first indication the crew had they were under siege were loud banging noises as the fanatical kamikazes impacted the leading edge of the wings and fuselage in a fowl attempt to do great harm to the Hercules and force the intrepid crew to depart their territory. Fortunately, the pilot was able to land the airplane safely in spite of this unwarranted assault by feathered fiends. The crew visually checked their aluminum eagle for damage and found a sizeable dent in the leading edge of the right wing. After local maintenance and the flightcrew satisfied themselves there was no structural damage and the C-130 was safe to fly, the battle-weary warriors took off and E 'n' E'd back to their home base.

Even though the birds may have counted it a victory, they paid a high price for the $6,000 worth of damage they inflicted on the transport. A civilian aircraft landing just behind the ill-fated Herk reported an amazingly high feather-covered-creature body count at the approach end of the runway. Because such "Peck's-Bad-Birds" are so highly mobile, they can attack us without warning most anyplace we fly. Everyone should be sure to check notams and flight planning pubs for the most probable high threat areas before takeoff. And remember, be especially careful when flying *round-robins*.

Poisoned Pilot

One recent airline crew realized the onset of pilot incapacitation during cruise flight at night. The pilot not flying the DC-10 fainted and fell over the yoke disconnecting the autopilot (AP) and autothrottle system. As all of this was taking place, the heavy Douglas went into an 85° bank and experienced a low-speed-stall losing 2,500 feet before the other pilot could recover. Once on the ground, the DFDR (digital flight data recorder) showed that 15° of left rudder was put in by the fainting pilot. The autopilot corrected this initially, but when the pilot's hand went through the yoke, both the AP and autothrottle systems were disconnected. Luckily the incapacitated pilot recovered shortly after the incident, a victim of food poisoning. Crewmembers in general and pilots in particular should advise the other members of the crew at the first sign of illness so something can be done—now. If you're at the controls of the air machine, and you don't feel you can safely remove yourself from the controls, lock your shoulder harness, kick back, catch your breath and ask for help.

—Eastern Airlines *Flight Lines*

Clearance. Clearance. Who's Got Our Clearance?

In today's exciting episode of "It Happened in the ILS Pattern," we find our two steely-eyed heroes in their trusty CT-39 at 7,000 feet awaiting descent to the glide path intercept altitude of 4,500 feet. A traffic controller has just cleared a flight of A-7s in front of and below the CT-39 for initial. As the traffic controller clears our flyers for descent to 4,500 feet at 7.9 miles (well inside the descent point for glide path interception), the pilots in the Sabreliner lose sight of the "Slufs" and delay their descent for another 20 seconds trying to find the little rascals.

Meanwhile, the controller hands off the Sabreliner to the PAR monitor, but the PAR controller can't find the miniliner on his scope due to its higher than normal altitude in relation to the glide path. The PAR monitor decides he can't accept the hand-off because of the higher than normal altitude and tries to tell the traffic controller this. The controller, however, is busier than a honey-coated bear in a bee's nest and has switched off his frequency monitor switch thus effectively blocking the crew's transmission.

Realizing they are too high to complete the approach the crew tries to raise the traffic controller but with no success. Now closer than 6 miles to the field and still at 7,000 feet, our pilots switch to tower and complete a visual approach to the field.

What happened here? Well, in an attempt to sequence the traffic a little more tightly than usual due to the higher than normal traffic load, the controller failed to follow proper procedures in handing off traffic to the PAR monitor. He also kept the '39 at a higher altitude than normal in his effort to sequence the traffic a little tighter. Fortunately, the pilots acted promptly and correctly to the situation which might have been worse for the unwary.

Notable Quote

I am more powerful than the combined armies of the world. I have destroyed more men than all wars of all nations. I massacre thousands of people every year. I am more deadly than bullets, and I have wrecked more homes than the mightiest guns.

In the United States alone, I steal over 500 million dollars every year. I spare no one, and I find my victims among the rich and poor alike, the young and old, the strong and weak. Widows know me to their everlasting sorrow. I loom up in such proportions that I cast my shadow over every field of labor.

I lurk in unseen places and do most of my work silently. You are warned against me, yet you heed me not. I am relentless, merciless, and cruel. I am everywhere—in the home, on the streets, in the factory, at railroad crossings, on land, in the air and on the sea.

I bring sickness, degradation and death, yet few seek me out to destroy me. I crush, I maim, I will give you nothing and rob you of all you have.

I am your worst enemy—I am *CARELESSNESS!*

—From Eastern Airlines *Flight Lines*

AFTER DEADLINES

MAC UNITS WIN USAF SAFETY PLAQUES. MAC units earned 11 of 50 USAF Flight Safety Plaques awarded for meritorious achievement in mishap prevention for calendar year 1981. Flight safety plaques were also awarded to four MAC-gained ARF units. MAC winners of USAF flight safety plaques include: 89th MAW, Andrews AFB; 616th MAG, Elmendorf AFB; 54th WRS, Andersen AFB, Guam; 375th AAW including the 932 AAG (Assoc), Scott AFB; 436th MAW including the 512th MAW (Assoc), Dover AFB; 374th TAW, Clark AB, RP; 39th ARRW, Eglin AFB; 317th TAW, Pope AFB; 60th MAW including the 349th MAW (Assoc), Travis AFB; 71st ARRS, Elmendorf AFB; and 437th MAW including the 315th MAW (Assoc), Charleston AFB. MAC-gained AFRES unit winners are the 459th TAW, Andrews AFB; and the 301st ARRS, Homestead AFB. MAC-gained ANG units winning the USAF Flight Safety Plaques are the 130th TAG, Charleston, WV; and the 167th TAG, Martinsburg, WV. The 314th TAW, Little Rock AFB, won a USAF Explosives Safety Plaque for 1981. The 6th MAS, McGuire AFB, and the 36th TAS, McChord AFB, won USAF Nuclear Surety Plaques for 1981. TMF salutes these winners and their outstanding safety achievements.

NEXT MONTH'S ISSUE OF TMF will include: "The Winners" of the 1982 MAC Flying Safety Writing Contest along with the first place-winning entry; the MAC Roll of Honor, presenting MAC Unit Accident-Free Flying Hour and Year Milestone Awards for 1981; and "Drop at Dawn," a first-person report on MAC's participation in the 90-ship Gallant Eagle 82 Airdrop at Fort Irwin, California.

Notice To Our Readers

The flying safety writing contest story entitled "The Expert" which appeared in the March 1982 issue of The MAC Flyer was totally fictional and was not meant to describe any specific individual. When the story was accepted by the Flyer staff and selected for publication, no one on the staff was aware that the character, Charlie Cool, would be erroneously identified by some of our readers as a former member of MAC. In particular the character, Charlie Cool, was not meant to depict Charles H. Cole, Major, USAFRes (Retired), nor did the incidents portrayed and the unsafe and unprofessional actions of the character in the story depict in any way the past performance or behavior of Major Cole. The Flyer staff regrets that some of our readers may have concluded otherwise and we apologize to Major Cole for any embarrassment the publication of this story may have caused.

The masthead of each issue of The MAC Flyer clearly states that "Names of people and places in mishap stories are fictitious." Fictional stories are published in the interests of accident prevention only and any attempt to identify fictional characters as "real people" is unwarranted.--Ed.

☆U.S. GOVERNMENT PRINTING OFFICE: 1982-564-017/2

Touch 'n' Go

"Okay, lieutenant, just put 'entered in error' and sign it."